High mortality rate in COVID-19–associated stroke, analysis of risk factors

Leonardo Renieri

Why is there a disproportionate rate among black patients?

In a preliminary analysis of a North American neurovascular consortium comprising 14 comprehensive stroke centres in the USA and Canada, Dmytriw et al on p XXX suggest that rates of mortality with COVID-19–associated stroke are greater than in COVID-19 or stroke in otherwise. Importantly, African American/black patients experience greater rates of mortality when suffering stroke compared with other races in this cohort. While this group had greater rates of diabetes mellitus, higher LDL levels and higher sICH, there were no definite other differences between them. Lower rates of tPA and EVT administration approached significance, but it is unclear whether thiswill be borne out as the consortium grows.

The neurological insults associated with COVID-19 are becoming increasingly recognised. An initial report from China showed 4.6% of patients with COVID-19 had acute ischaemic stroke (10/219), and strokes were seen in those who were older, had more vascular risk factors and more severe COVID-19 infection. As we in Italy hurried to synthesise findings and respond to a national emergency, the pandemic subsumed New York City and a major stroke care system eventually reported that 65.6% of COVID-associated strokes were cryptogenic compared with 30.4% and 25.0% in contemporary and historic controls, respectively. Admission NIHSS and peak D-dimer were both consistently higher.

We understand from Millett et al in an investigation of COVID-19 impact on black communities that counties with higher proportions of black residents had more COVID-19 cases (RR 1.24, 95% CI 1.17 to 1.33). Indeed, they also identified a higher COVID-19 mortality (RR 1.18, 95% CI 1.00 to 1.40) and have reported that 20% of US counties are disproportionately black, which account for 52% of COVID-19 cases and 58% of COVID-19 deaths. The work by Price-Haywood et al has helped us to understand the mechanisms at play. The investigators analysed a total 3481 patients with COVID-19 in Louisiana (Ochsner Health), showing that 76.9% of hospitalisations and 70.6% of deaths associated with COVID-19 were black. After adjustment for differences in sociodemographic and clinical characteristics on admission, black race was not associated with higher in-hospital mortality. However, this depended on modelling differentially considered race only, covariates of age and sex, Charlson Comorbidity Index, low-income residence, obesity, insurance source, and admission vitals and laboratory studies. The authors note this may reflect racial differences in employment-associated risk, differences in prevalence of chronic comorbidities which increase the risk of severe illness, and the incidence of factors such as obesity and diabetes which were higher in the black population. However, these conditions are also higher among persons of lower education or low income across all race groups highlighting another potentially crucial factor.

As fatalities continue to be reported in both Italy and the USA, elucidation of a potential interaction between COVID-19 and stroke which explains elevated fatality rates is more pressing than ever. At the same time, sociodemographic evidence which allows us to understand and ultimately combat outcome inequity is also urgently needed.

Contributors LR wrote the commentary.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Commissioned; internally peer reviewed.

This article is made freely available for use in accordance with BMJ's website terms and conditions for the duration of the covid-19 pandemic or until otherwise determined by BMJ. You may use, download and print the article for any lawful, non-commercial purpose (including text and data mining) provided that all copyright notices and trade marks are retained.

© Author(s) (or their employer(s)) 2020. No commercial re-use. See rights and permissions. Published by BMJ.

To cite Renieri L. J Neurol Neurosurg Psychiatry 2020;91:1249.

Received 3 August 2020
Accepted 9 August 2020
Published Online First 27 August 2020

http://dx.doi.org/10.1136/jnnp-2020-324781

J Neurol Neurosurg Psychiatry 2020;91:1249.

doi:10.1136/jnnp-2020-324781

ORCID iD
Leonardo Renieri http://orcid.org/0000-0001-8966-8266

REFERENCES


